

REMARKS

This responds to the Office Action mailed on September 8, 2004.

Claims 1 and 23 are amended, no claims are canceled, and no claims are added; as a result, claims 1-29 are now pending in this application.

§102 Rejection of the Claims

The Examiner has rejected claims 1-22 and 26-29 as being anticipated by Toy et al. and Vrtis et al. In order to anticipate a claim, a reference must have each and every element claimed. The Toy et al reference does not describe “a main body having a surface that is plated or coated with at least two different metals to form a design effective for bonding to solder and for adhering to polymer in a thermal interface material.” Figure 1 of the Toy et al. patent shows an “adherent metal film” 20 that is shown and described as a monolayer of one metal type. There is no showing or discussion in the patent of a surface that is plated or coated with at least **two different** metals. Because the Toy et. al reference does not have this claimed feature, the references does not anticipate claims 1-22 and 26-29.

The Vrtis et al. patent describes a use of organic surface protectant (OSP) to cover a heat spreader. Col. 3, lines 10-20 describe a use of solder materials thermally coupled to a heat spreader. The patent notes that heat spreaders with surface oxides may adhere poorly to inorganic and inorganic-organic thermal interface materials, TIMs. The patent states that ,”{O]ne solution is to plate the heat spreader with a gold layer over a nickel layer (“Au/Ni finish”) to protect against corrosion by preventing oxides form forming.” The patent also states that the Au/Ni finish provided an “unsatisfactory solution.”

The Au/Ni finish is described as a gold layer over a nickel layer. Thus, there is no “main body having an exposed surface that is plated or coated with at least two different metals” because the main body having an exposed surface in the Vrtis et al. patent is plated or coated with only one metal. Furthermore, the Vrtis et al. patent does not describe any coating or plating that forms “a design effective for bonding to solder and for adhering to polymer in a thermal interface material.” The Vrtis et al. patent admits that the gold layer over a nickel layer did not provide a satisfactory solution. The Vrtis et al. patent does not describe each and every element claimed and cannot then anticipate the claims.

§103 Rejection of the Claims

The Examiner has rejected claims 23 and 24 as being unpatentable in light of Colleran et al. and Dozier et al. The Colleran et al. patent discusses art that is not analogous with integrated circuit packages. Because the Colleran et al. patent does not describe analogous art, Applicant questions the Examiner's basis for combining the Colleran et al. reference with the Dozier et al. reference or the Kao reference. As acknowledged by the Examiner, neither the Dozier et al. reference nor the Kao reference describes "a method for preventing delamination in a thermal interface material of an integrated circuit package that contacts a heat dissipation device surface, comprising:

applying a pre-attached solder to the surface of the heat dissipation device surface contacting the thermal interface material," which is what is claimed. The Applicant thus asserts that the Colleran et al. and Dozier et al. and Kao references do not render claims 23 and 24 obvious.

Claim 25 was rejected under 35 USC § 103(a) as being unpatentable over Colleran (U.S. 5,098,320) in view of Dozier, II et al. (U.S. 5,820,014) as applied to claims above, and further in view of Kao et al. (U.S. 6,602,777). For reasons discussed above, the combination of Colleran, Dozier and Kao do not render dependent claim 25 obvious. The Colleran reference does not describe analogous art. Neither Dozier nor Kao describes an integrated circuit package as is claimed.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney ((612) 373-6976) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

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Date 8 November 04

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 8th day of November, 2004.

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